

## SEQUENCE LISTING

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Holtzman, Douglas A.  
Goodearl, Andrew D.J.

<120> NOVEL GENES ENCODING PROTEINS HAVING  
PROGNOSTIC, DIAGNOSTIC, PREVENTIVE, THERAPEUTIC AND OTHER  
USES

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<150> US 09/128,709

<151> 1998-08-04

<150> US 60/054,645

<151> 1997-08-04

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<151> 1998-08-06

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<213> Homo sapiens

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Thr	Ser	Asn	Ala	Ala	Leu	Thr	Leu	Arg	Asn	Phe	Cys	Asn	Trp	Gln	Lys
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Gln	His	Asn	Pro	Pro	Ser	Asp	Arg	Asp	Ala	Glu	His	Tyr	Asp	Thr	Ala
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Ile	Leu	Phe	Thr	Arg	Gln	Asp	Leu	Cys	Gly	Ser	Gln	Thr	Cys	Asp	Thr
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Leu	Gly	Met	Ala	Asp	Val	Gly	Thr	Val	Cys	Asp	Pro	Ser	Arg	Ser	Cys
65					70					75					80
Ser	Val	Ile	Glu	Asp	Gly	Leu	Gln	Ala	Ala	Phe	Thr	Thr	Ala	His	
				85				90					95		
Glu	Leu	Gly	His	Val	Phe	Asn	Met	Pro	His	Asp	Asp	Ala	Lys	Gln	Cys
			100					105					110		
Ala	Ser	Leu	Asn	Gly	Val	Asn	Gln	Asp	Ser	His	Met	Met	Ala	Ser	Met
		115					120				125				
Leu	Ser	Asn	Leu	Asp	His	Ser	Gln	Pro	Trp	Ser	Pro	Cys	Ser	Ala	Tyr
	130					135					140				
Met	Ile	Thr	Ser	Phe	Leu	Asp	Asn	Gly	His	Gly	Glu	Cys	Leu	Met	Asp
145					150					155					160
Lys	Pro	Gln	Asn	Pro	Ile	Gln	Leu	Pro	Gly	Asp	Leu	Pro	Gly	Thr	Ser
			165						170				175		
Tyr	Asp	Ala	Asn	Arg	Gln	Cys	Gln	Phe	Thr	Phe	Gly	Glu	Asp	Ser	Lys
			180					185					190		
His	Cys	Pro	Asp	Ala	Ala	Ser	Thr	Cys	Ser	Thr	Leu	Trp	Cys	Thr	Gly
		195					200					205			
Thr	Ser	Gly	Gly	Val	Leu	Val	Cys	Gln	Thr	Lys	His	Phe	Pro	Trp	Ala
	210					215					220				
Asp	Gly	Thr	Ser	Cys	Gly	Glu	Gly	Lys	Trp	Cys	Ile	Asn	Gly	Lys	Cys
225					230					235					240
Val	Asn	Lys	Thr	Asp	Arg	Lys	His	Phe	Asp	Thr	Pro	Phe	His	Gly	Ser
			245						250				255		
Trp	Gly	Met	Trp	Gly	Pro	Trp	Gly	Asp	Cys	Ser	Arg	Thr	Cys	Gly	Gly
			260					265					270		
Gly	Val	Gln	Tyr	Thr	Met	Arg	Glu	Cys	Asp	Asn	Pro	Val	Pro	Lys	Asn
		275					280					285			
Gly	Gly	Lys	Tyr	Cys	Glu	Gly	Lys	Arg	Val	Arg	Tyr	Arg	Ser	Cys	Asn
	290					295					300				
Leu	Glu	Asp	Cys	Pro	Asp	Asn	Asn	Gly	Lys	Thr	Phe	Arg	Glu	Glu	Gln
305					310					315					320
Cys	Glu	Ala	His	Asn	Glu	Phe	Ser	Lys	Ala	Ser	Phe	Gly	Ser	Gly	Pro
			325						330					335	
Ala	Val	Glu	Trp	Ile	Pro	Lys	Tyr	Ala	Gly	Val	Ser	Pro	Lys	Asp	Arg
			340					345					350		
Cys	Lys	Leu	Ile	Cys	Gln	Ala	Lys	Gly	Ile	Gly	Tyr	Phe	Phe	Val	Leu

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gccgcacccc aggccccag aggccagtct gtttgcctcc caacgccatc tgaccagggt 120
gagcaagagg atg ctg gcg ggg ggc gtg agg agc atg ccc agc ccc ctc 169
          Met Leu Ala Gly Gly Val Arg Ser Met Pro Ser Pro Leu
              1              5              10

ctg gcc tgc tgg cag ccc atc ctc ctg ctg gtg ctg ggc tca gtg ctg 217
Leu Ala Cys Trp Gln Pro Ile Leu Leu Leu Val Leu Gly Ser Val Leu
      15              20              25

tca ggc tcg gcc acg ggc tgc ccg ccc cgc tgc gag tgc tcc gcc cag 265
Ser Gly Ser Ala Thr Gly Cys Pro Pro Arg Cys Glu Cys Ser Ala Gln
      30              35              40              45

gac cgc gct gtg ctg tgc cac cgc aag cgc ttt gtg gca gtc ccc gag 313
Asp Arg Ala Val Leu Cys His Arg Lys Arg Phe Val Ala Val Pro Glu
              50              55              60

ggc atc ccc acc gag acg cgc ctg ctg gac cta ggc aag aac cgc atc 361
Gly Ile Pro Thr Glu Thr Arg Leu Leu Asp Leu Gly Lys Asn Arg Ile
              65              70              75

aaa acg ctc aac cag gac gag ttc gcc agc ttc ccg cac ctg gag gag 409

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Lys	Thr	Leu	Asn	Gln	Asp	Glu	Phe	Ala	Ser	Phe	Pro	His	Leu	Glu	Glu	
		80					85					90				
ctg	gag	ctc	aac	gag	aac	atc	gtg	agc	gcc	gtg	gag	ccc	ggc	gcc	ttc	457
Leu	Glu	Leu	Asn	Glu	Asn	Ile	Val	Ser	Ala	Val	Glu	Pro	Gly	Ala	Phe	
	95					100					105					
aac	aac	ctc	ttc	aac	ctc	cgg	acg	ctg	ggc	ctc	cgc	agc	aac	cgc	ctg	505
Asn	Asn	Leu	Phe	Asn	Leu	Arg	Thr	Leu	Gly	Leu	Arg	Ser	Asn	Arg	Leu	
110					115					120					125	
aag	ctc	atc	ccg	cta	ggc	gtc	ttc	act	ggc	ctc	agc	aac	ctg	acc	aag	553
Lys	Leu	Ile	Pro	Leu	Gly	Val	Phe	Thr	Gly	Leu	Ser	Asn	Leu	Thr	Lys	
			130						135					140		
ctg	gac	acg	agg	gag	aac	aag	atc	gtt	atc	cta	ctg	gac	tac	atg	ttt	601
Leu	Asp	Thr	Arg	Glu	Asn	Lys	Ile	Val	Ile	Leu	Leu	Asp	Tyr	Met	Phe	
			145					150					155			
cag	gac	ctg	tac	aac	ctc	aag	tca	ctg	gag	gtt	ggc	gac	aat	gac	ctc	649
Gln	Asp	Leu	Tyr	Asn	Leu	Lys	Ser	Leu	Glu	Val	Gly	Asp	Asn	Asp	Leu	
		160					165					170				
gtc	tac	atc	tct	cac	cgc	gcc	ttc	agc	ggc	ctc	aac	agc	ctg	gag	cag	697
Val	Tyr	Ile	Ser	His	Arg	Ala	Phe	Ser	Gly	Leu	Asn	Ser	Leu	Glu	Gln	
	175					180					185					
ctg	act	ctg	gag	aaa	tgc	aac	ctg	acc	tcc	atc	ccc	acc	gag	gcg	ctg	745
Leu	Thr	Leu	Glu	Lys	Cys	Asn	Leu	Thr	Ser	Ile	Pro	Thr	Glu	Ala	Leu	
190					195					200					205	
tcc	cac	ctg	cac	ggc	ctc	atc	gtc	ctg	agg	ctc	cgg	cac	ctc	aac	atc	793
Ser	His	Leu	His	Gly	Leu	Ile	Val	Leu	Arg	Leu	Arg	His	Leu	Asn	Ile	
				210					215					220		
aat	gcc	atc	cgg	gac	tac	tcc	ttc	aag	agg	ctg	tac	cga	ctc	aag	gtc	841
Asn	Ala	Ile	Arg	Asp	Tyr	Ser	Phe	Lys	Arg	Leu	Tyr	Arg	Leu	Lys	Val	
			225				230					235				
ttg	gag	atc	tcc	cac	tgg	ccc	tac	ttg	gac	acc	atg	aca	ccc	aac	tgc	889
Leu	Glu	Ile	Ser	His	Trp	Pro	Tyr	Leu	Asp	Thr	Met	Thr	Pro	Asn	Cys	
	240					245						250				
ctc	tac	ggc	ctc	aac	ctg	acg	tcc	ctg	tcc	atc	aca	cac	tgc	aat	ctg	937
Leu	Tyr	Gly	Leu	Asn	Leu	Thr	Ser	Leu	Ser	Ile	Thr	His	Cys	Asn	Leu	
	255					260					265					
acc	gct	gtg	ccc	tac	ctg	gcc	gtc	cgc	cac	cta	gtc	tat	ctc	cgc	ttc	985
Thr	Ala	Val	Pro	Tyr	Leu	Ala	Val	Arg	His	Leu	Val	Tyr	Leu	Arg	Phe	
270					275					280					285	
ctc	aac	ctc	tcc	tac	aac	ccc	atc	agc	acc	att	gag	ggc	tcc	atg	ttg	1033
Leu	Asn	Leu	Ser	Tyr	Asn	Pro										

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320						325						330						
ctc Leu	aat Asn	gtc Val	tct Ser	ggc Gly	aac Asn	cag Gln	ctg Leu	acc Thr	aca Thr	ctg Leu	gag Glu	gaa Glu	tca Ser	gtc Val	ttc Phe	1177		
335						340						345						
cac His	tcg Ser	gtg Val	ggc Gly	aac Asn	ctg Leu	gag Glu	aca Thr	ctc Leu	atc Ile	ctg Leu	gac Asp	tcc Ser	aac Asn	ccg Pro	ctg Leu	1225		
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gcc Ala	tgc Cys	gac Asp	tgt Cys	cgg Arg	ctc Leu	ctg Leu	tgg Trp	gtg Val	ttc Phe	cgg Arg	cgc Arg	cgc Arg	tgg Trp	cgg Arg	ctc Leu	1273		
370						375						380						
aac Asn	ttc Phe	aac Asn	cgg Arg	cag Gln	cag Gln	ccc Pro	acg Thr	tgc Cys	gcc Ala	acg Thr	ccc Pro	gag Glu	ttt Phe	gtc Val	cag Gln	1321		
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ggc Gly	aag Lys	gag Glu	ttc Phe	aag Lys	gac Asp	ttc Phe	cct Pro	gat Asp	gtg Val	cta Leu	ctg Leu	ccc Pro	aac Asn	tac Tyr	ttc Phe	1369		
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acc Thr	tgc Cys	cgc Arg	cgc Arg	gcc Ala	cgc Arg	atc Ile	cgg Arg	gac Asp	cgc Arg	aag Lys	gcc Ala	cag Gln	cag Gln	gtg Val	ttt Phe	1417		
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430						435						440						
ccg Pro	ccg Pro	ccc Pro	gcc Ala	atc Ile	ctc Leu	tgg Trp	ctc Leu	tca Ser	ccc Pro	cga Arg	aag Lys	cac His	ctg Leu	gtc Val	tca Ser	1513		
450						455						460						
gcc Ala	aag Lys	agc Ser	aat Asn	ggg Gly	cgg Arg	ctc Leu	aca Thr	gtc Val	ttc Phe	cct Pro	gat Asp	ggc Gly	acg Thr	ctg Leu	gag Glu	1561		
465						470						475						
gtg Val	cgc Arg	tac Tyr	gcc Ala	cag Gln	gta Val	cag Gln	gac Asp	aac Asn	ggc Gly	acg Thr	tac Tyr	ctg Leu	tgc Cys	atc Ile	gcg Ala	1609		
480						485						490						
gcc Ala	aac Asn	gcg Ala	ggc Gly	ggc Gly	aac Asn	gac Asp	tcc Ser	atg Met	ccc Pro	gcc Ala	cac His	ctg Leu	cat His	gtg Val	cgc Arg	1657		
495						500						505						
agc Ser	tac Tyr	tcg Ser	ccc Pro	gac Asp	tgg Trp	ccc Pro	cat His	cag Gln	ccc Pro	aac Asn	aag Lys	acc Thr	ttc Phe	gct Ala	ttc Phe	1705		
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Val	Leu	Cys	His	Arg	Lys	Arg	Phe	Val	Ala	Val	Pro	Glu	Gly	Ile	Pro
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Phe	Asn	Leu	Arg	Thr	Leu	Gly	Leu	Arg	Ser	Asn	Arg	Leu	Lys	Leu	Ile
		115				120						125			
Pro	Leu	Gly	Val	Phe	Thr	Gly	Leu	Ser	Asn	Leu	Thr	Lys	Leu	Asp	Thr
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Arg	Glu	Asn	Lys	Ile	Val	Ile	Leu	Leu	Asp	Tyr	Met	Phe	Gln	Asp	Leu
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Tyr	Asn	Leu	Lys	Ser	Leu	Glu	Val	Gly	Asp	Asn	Asp	Leu	Val	Tyr	Ile
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Leu Val Leu Leu Leu Leu Gly Leu Phe Arg Pro Pro Pro Ala Leu Cys	
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Gly Glu Ala Ala Gly Ala Val Gln Glu Leu Ala Arg Ala Leu Ala His	
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Leu Leu Glu Ala Glu Arg Gln Glu Arg Ala Arg Ala Glu Ala Gln Glu	
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Ala Glu Asp Gln Gln Ala Arg Val Leu Ala Gln Leu Leu Arg Val Trp	
100 105 110	
ggc gcc ccc cgc aac tct gat ccg gct ctg ggc ttg gac gac gac ccc	444
Gly Ala Pro Arg Asn Ser Asp Pro Ala Leu Gly Leu Asp Asp Asp Pro	
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Asp Ala Pro Ala Ala Gln Leu Ala Arg Ala Leu Leu Arg Ala Arg Leu	
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Asp Pro Ala Ala Leu Ala Ala Gln Leu Val Pro Ala Pro Val Pro Ala	
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On the other hand, the fact that the number of people who are not in the labor force is increasing is a sign of a weak economy. It is a sign that people are giving up on the labor market and are not looking for work. This is a sign of a weak economy.

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Asn Asn Pro Lys Leu Ser Tyr Ile His Arg Leu Ala Phe Arg Ser Val
      325                      330                      335
Pro Ala Leu Glu Ser Leu Met Leu Asn Asn Asn Ala Leu Asn Ala Val
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His Ser Asn Pro Leu Arg Cys Asp Cys Val Ile His Trp Ile Asn Ser
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Asn Lys Thr Asn Ile Arg Phe Met Glu Pro Leu Ser Met Phe Cys Ala
385                      390                      395                      400
Met Pro Pro Glu Tyr Arg Gly Gln Gln Val Lys Glu Val Leu Ile Gln
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Asp Ser Ser Glu Gln Cys Leu Pro Met Ile Ser His Asp Thr Phe Pro
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Ala Met Ala Glu Pro Glu Pro Glu Ile Tyr Trp Val Thr Pro Ile Gly
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465                      470                      475                      480
Glu Gly Thr Leu Glu Ile Ala Asn Ile Gln Ile Glu Asp Ser Gly Arg
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Tyr Thr Cys Val Ala Gln Asn Val Gln Gly Ala Asp Thr Arg Val Ala
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Thr Ile Lys Val Asn Gly Thr Leu Leu Asp Gly Ala Gln Val Leu Lys
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Ile Tyr Val Lys Gln Thr Glu Ser His Ser Ile Leu Val Ser Trp Lys
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Val Asn Ser Asn Val Met Thr Ser Asn Leu Lys Trp Ser Ser Ala Thr
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Met Lys Ile Asp Asn Pro His Ile Thr Tyr Thr Ala Arg Val Pro Val
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Asp Val His Glu Tyr Asn Leu Thr His Leu Gln Pro Ser Thr Asp Tyr
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Lys Arg Lys Asn Tyr His His Ser Leu Lys Lys Tyr Met Gln Lys Thr
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Ser Ser Ile Pro Leu Asn Glu Leu Tyr Pro Pro Leu Ile Asn Leu Trp
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Ala	Ser	Leu	Asn	Gly	Val	Asn	Gln	Asp	Ser	His	Met	Met	Ala	Ser	Met
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Lys	Pro	Gln	Asn	Pro	Ile	Gln	Leu	Pro	Gly	Asp	Leu	Pro	Gly	Thr	Ser
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Tyr	Asp	Ala	Asn	Arg	Gln	Cys	Gln	Phe	Thr	Phe	Gly	Glu	Asp	Ser	Lys
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His	Cys	Pro	Asp	Ala	Ala	Ser	Thr	Cys	Ser	Thr	Leu	Trp	Cys	Thr	Gly
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Thr	Ser	Gly	Gly	Val	Leu	Val	Cys	Gln	Thr	Lys	His	Phe	Pro	Trp	Ala
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Asp	Gly	Thr	Ser	Cys	Gly	Glu	Gly	Lys	Trp	Cys	Ile	Asn	Gly	Lys	Cys
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Val	Asn	Lys	Thr	Asp	Arg	Lys	His	Phe	Asp	Thr	Pro	Phe	His	Gly	Ser
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Trp	Gly	Met	Trp	Gly	Pro	Trp	Gly	Asp	Cys	Ser	Arg	Thr	Cys	Gly	Gly
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Cys	Glu	Ala	His	Asn	Glu	Phe	Ser	Lys	Ala	Ser	Phe	Gly	Ser	Gly	Pro
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Ala	Val	Glu	Trp	Ile	Pro	Lys	Tyr	Ala	Gly	Val	Ser	Pro	Lys	Asp	Arg
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Gln	Pro	Lys	Val	Val	Asp	Gly	Thr	Pro	Cys	Ser	Pro	Asp	Ser	Thr	Ser
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Val	Cys	Val	Gln	Gly	Gln	Cys	Val	Lys	Ala	Gly	Cys	Asp	Arg	Ile	Ile
385					390					395					400
Asp	Ser	Lys	Lys	Lys	Phe	Asp	Lys	Cys	Gly	Val	Cys	Gly	Gly	Asn	Gly
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Tyr	His	Asp	Ile	Ile	Thr	Ile	Pro	Ile	Gly	Ala	Thr	Asn	Ile	Glu	Val
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Lys	Gln	Arg	Asn	Gln	Arg	Gly	Ser	Arg	Asn	Asn	Gly	Ser	Phe	Leu	Ala

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Met Asp Lys Pro Gln Asn Pro Ile Lys Leu Pro Ser Asp Leu Pro Gly	
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Trp Ala Asp Gly Thr Ser Cys Gly Glu Gly Lys Trp Cys Val Ser Gly	
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ggt Gly	ggt Gly	gga Gly	gtt Val 130	caa Gln	tac Tyr	aca Thr	atg Met	aga Arg 135	gaa Glu	tgt Cys	gac Asp	aac Asn	cca Pro 140	gtc Val	cca Pro	434
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cct Pro	ggg Gly	tat Tyr	cat His 290	gac Asp	att Ile	gtc Val	aca Thr 295	att Ile	cct Pro	gct Ala	gga Gly	gcc Ala	acc Thr 300	aac Asn	att Ile	914
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Gln	Cys	Arg	Asp	Ile	Asn	Gly	His	Pro	Ala	Ser	Glu	Cys	Ala	Lys	Glu		
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Trp	Gln	Val	Gly	Asp	Trp	Ser	Pro	Cys	Ser	Lys	Thr	Cys	Gly	Lys	Gly		
		465					470					475					
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Tyr	Lys	Lys	Arg	Thr	Leu	Lys	Cys	Val	Ser	His	Asp	Gly	Gly	Val	Leu		
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Ser	Asn	Glu	Ser	Cys	Asp	Pro	Leu	Lys	Lys	Pro	Lys	His	Tyr	Ile	Asp		
495					500					505					510		
ttt	tgc	aca	ctg	aca	cag	tgc	agt	taagaggcgt				tagaggacaa				1592	
Phe	Cys	Thr	Leu	Thr	Gln	Cys	Ser										
			515														
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			20					25					30		
Tyr	Asp	Ala	Asn	Arg	Gln	Cys	Gln	Phe	Thr	Phe	Gly	Glu	Glu	Ser	Lys
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His	Cys	Pro	Asp	Ala	Ala	Ser	Thr	Cys	Thr	Thr	Leu	Trp	Cys	Thr	Gly
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Cys	Glu	Ala	His	Asn	Glu	Phe	Ser	Lys	Ala	Ser	Phe	Gly	Asn	Glu	Pro
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Thr	Val	Glu	Trp	Thr	Pro	Lys	Tyr	Ala	Gly	Val	Ser	Pro	Lys	Asp	Arg
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Cys	Lys	Leu	Thr	Cys	Glu	Ala	Lys	Gly	Ile	Gly	Tyr	Phe	Phe	Val	Leu
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Gln	Pro	Lys	Val	Val	Asp	Gly	Thr	Pro	Cys	Ser	Pro	Asp	Ser	Thr	Ser
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Val	Cys	Val	Gln	Gly	Gln	Cys	Val	Lys	Ala	Gly	Cys	Asp	Arg	Ile	Ile
			245					250					255		
Asp	Ser	Lys	Lys	Lys	Phe	Asp	Lys	Cys	Gly	Val	Cys	Gly	Gly	Asn	Gly

1. *Pharmaceuticals*: The pharmaceutical industry is a major contributor to the U.S. economy, with sales exceeding \$400 billion in 2019. The industry is heavily regulated by the FDA, which oversees the safety, efficacy, and quality of drugs. The industry is also facing increasing competition from generic drugs and biosimilars.

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T06030"03030000

